Modification of Vector Mesons in Nuclear Matter measured in 12GeV p+A reactions at KEK–PS.

K. Ozawa, H. En'yo, H. Funahashi, M. Kitaguchi, M. Ishino, S. Mihara, T. Miyashit
J. Chiba, M. Ieiri, M. Nomachi, O. Sasaki, M. Sekimoto and K.H. Tanaka [b]
H. Hamagaki [c]

[a] *Department of Physics, Kyoto University, Kitashirakawa Sakyo-Ku, Kyoto, 606-01, Japan*

[b] *KEK, 1-1 Oho, Tsukuba, Ibaraki 305-0801 Japan*

[c] *CNS, Graduate School of Science, University of Tokyo,7-3-1 Hongo, Tokyo 113-0033, Japan*

Presented by: K. Ozawa

Abstract

We have measured invariant mass spectra of electron-positoron pair and K^+ K^- pair in 12GeV p+A interaction at KEK Proton-Synchrotron. The aim of the experiment is to detect in-medium modification of the vector meson, which is theoretically predicted as a consequence of partially-restored chiral-symmetry. We have observed clear peaks of $\phi \rightarrow K^+K^-$ with a mass resolution of 2.4 MeV and $\rho, \omega, \phi \rightarrow e^+e^-$ with 9.9 MeV resolution.

Amongst those a signiffiant difference was observed in the mass shapes of $\rho/\omega \rightarrow e^+e^-$ between the p+Cu and p+C data. A possible origine of the mass-shape modification can be the mass shift of the omega meson as suggested by Hatsuda and Lee.

We will report on the results including the mass shape study on $\phi \rightarrow K^+K^-$.
